AMENDMENTS TO THE CLAIMS

Please cancel claims 1, 3-4 and 6-12 without prejudice or disclaimer of their underlying subject matter.

1-12 (canceled)

Please add the following new claims.

13. (new) A gain control circuit comprising:

a control voltage supply circuit using said external control voltage to generate an internal control voltage,

said internal control voltage relative to said external control voltage from a first reference voltage to a second reference voltage being different from when said external control voltage is less than said first reference voltage or exceeds said second reference voltage; and

a variable gain circuit having an uncompensated gain characteristic and a compensated gain characteristic,

said uncompensated gain characteristic relative to said external control voltage being linear from said first reference voltage to said second reference voltage, and being non-linear when said external control voltage is less than said first reference voltage or exceeds said second reference voltage,

said variable gain circuit using said internal control voltage to produce a compensated gain characteristic, and

said compensated gain characteristic relative to said external control voltage being linear from said first reference voltage to said second reference voltage, and being linear when said external control voltage is less than said first reference voltage or exceeds said second reference voltage,

wherein said compensated gain characteristic is a transmission gain.

14. (new) The gain control circuit as claimed in Claim 13, wherein said internal control voltage relative to said external control voltage from said first reference voltage to said second reference voltage increases less than when said external control voltage is less than said first reference voltage or exceeds said second reference voltage.

15. (new) The gain control circuit as claimed in Claim 13, wherein said variable gain circuit receives said internal control voltage as a gain control signal.

16. (new) The gain control circuit as claimed in Claim 13, wherein said transmission gain varies based upon said internal control voltage.

17. (new) The gain control circuit as claimed in Claim 13, wherein more than one said variable gain circuit is connected in cascade connection.

18. (new) A radio communication apparatus comprising:

a mixer that mixes a radio frequency signal with a local oscillation carrier to produce an intermediate frequency signal;

an amplifier that adjusts the signal level of said intermediate frequency signal, said amplifier having a control voltage supply circuit and a variable gain circuit,

said control voltage supply circuit using said external control voltage to generate an internal control voltage,

said internal control voltage relative to said external control voltage from a first reference voltage to a second reference voltage being different from when said external control voltage is less than said first reference voltage or exceeds said second reference voltage; and

said variable gain circuit having an uncompensated gain characteristic and a compensated gain characteristic,

said uncompensated gain characteristic relative to said external control voltage being linear from said first reference voltage to said second reference voltage, and being non-linear when said external control voltage is less than said first reference voltage or exceeds said second reference voltage,

said variable gain circuit using said internal control voltage to produce a compensated gain characteristic, and

said compensated gain characteristic relative to said external control voltage being linear from said first reference voltage to said second reference voltage, and

being linear when said external control voltage is less than said first reference voltage or exceeds said second reference voltage; and

a base band IC demodulates and decodes said adjusted intermediate frequency signal.

19. (new) The radio communication apparatus as claimed in Claim 18, wherein said internal control voltage relative to said external control voltage from said first reference voltage to said second reference voltage increases less than when said external control voltage is less than said first reference voltage or exceeds said second reference voltage.

20. (new) The radio communication apparatus as claimed in Claim 18, wherein said variable gain circuit receives said internal control voltage as a gain control signal.

21. (new) The radio communication apparatus as claimed in Claim 18, wherein said transmission gain varies based upon said internal control voltage.

22. (new) The radio communication apparatus as claimed in Claim 18, wherein more than one said variable gain circuit is connected in cascade connection.

23. (new) A radio communication apparatus comprising:

a base IC that encodes and modulates an intermediate frequency signal;

an amplifier that adjusts the signal level of said intermediate frequency signal, said amplifier having a control voltage supply circuit and a variable gain circuit;

said control voltage supply circuit using said external control voltage to generate an internal control voltage,

said internal control voltage relative to said external control voltage from a first reference voltage to a second reference voltage being different from when said external control voltage is less than said first reference voltage or exceeds said second reference voltage; and

said variable gain circuit having an uncompensated gain characteristic and a compensated gain characteristic,

said uncompensated gain characteristic relative to said external control voltage being linear from said first reference voltage to said second reference voltage, and being non-linear when said external control voltage is less than said first reference voltage or exceeds said second reference voltage;

said variable gain circuit using said internal control voltage to produce a compensated gain characteristic, and

said compensated gain characteristic relative to said external control voltage being linear from said first reference voltage to said second reference voltage, and being linear when said external control voltage is less than said first reference voltage or exceeds said second reference voltage; and

a mixer that mixes said adjusted intermediate frequency signal with a local oscillation carrier to produce a radio frequency signal.

24. (new) The radio communication apparatus as claimed in Claim 18, wherein said internal control voltage relative to said external control voltage from said first reference voltage to said second reference voltage increases less than when said external control voltage is less than said first reference voltage or exceeds said second reference voltage.

25. (new) The radio communication apparatus as claimed in Claim 23, wherein said variable gain circuit receives said internal control voltage as a gain control signal.

26. (new) The radio communication apparatus as claimed in Claim 23, wherein said transmission gain varies based upon said internal control voltage.

27. (new) The radio communication apparatus as claimed in Claim 23, wherein more than one said variable gain circuit is connected in cascade connection.